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09/896,408	06/28/2001	Christina Woody Mercier	15436.860	2281

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EXAMINER	
JEAN GILLES, JUDE	
ART UNIT	**PAPER NUMBER**
2143	

DATE MAILED: 11/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/896,408	MERCIER ET AL.	
	Examiner	Art Unit	
	Jude J. Jean-Gilles	2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *08/01/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This office action is responsive to RCE communication filed on 08/01/2005.

Claims 1-49 are now pending. Reconsideration of the claims in view of the applicant's remarks dated 08/01/2005 is respectfully submitted. New prior reference is used in this action to address the deficiencies of the prior art cited in the Final Office Action dated 02/01/2005, namely: Creating a datapath; parametizing a set of attributes of the desired datapath; and constructing the data path.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. **Claims 1-7, and 18-49** are rejected under 35 U.S.C. 103(a) as being unpatentable over Heil (Heil) U.S. Patent No. 6,944,152 B1, in view of Weber (Weber), U.S. Patent No. 6,732,104 B1.

Regarding **claim 1**, Heil discloses the invention substantially as claimed.

Heil discloses *a* method of creating a data path for a process executing on a server coupled to a storage area network (SAN), the SAN providing connectivity between the server and a storage device in the SAN (*fig. 3, column 5, lines 49-67*), the

method comprising: constructing a data path that provides said set of attributes (*column 6, lines 4-56*). However, Heil does not specifically teach "parameterizing the set of attributes for a desired data path between the process and the storage a device of the SAN.

In the same field of endeavor, Weber discloses "The data transfer paths typically extend through a conventional host bus adapter (HBA) 138 in the server 124-128, through a conventional network, or SAN, fabric ... and ... the logical volume 122 and the data volumes 184 are created based on attributes, or performance parameters, required by the user of the logical volume 122. Such performance parameters typically include size, transaction rate, bandwidth and RAID level, among others... [see Weber, column 8, lines 26-49, column 5, lines 6-33].

Accordingly, it would have been obvious to one of ordinary skill in the networking art at the time the invention was made to have incorporated Weber's teachings of a method and apparatus for parameterizing the set of attributes for a desired data path with the teachings of Heil, for the purpose of allowing handling data access requests within the storage system in such a manner that the devices that issue the requests without adversely affecting the ability of the devices that receive the requests to respond to the request.... as stated by Weber in lines 17-24 of column 1. By this rationale **claim 1** is rejected.

Regarding **claim 2**, the combination Heil-Weber discloses the method of claim 1 wherein said set of attributes includes a pre-defined template (*see Heil; column 10, lines 14-26*).

Regarding **claim 3**, the combination Heil-Weber discloses the method of claim 2 wherein said set of attributes includes a data path owner, application, and the server on which the application is executing (*see Heil; column 6, lines 4-19*).

Regarding **claim 4**, the combination Heil-Weber discloses the method of claim 2 wherein said pre-defined template specifies a set of performance, availability, and cost metrics for the desired data path (*see Heil; column 6, lines 4-56*).

Regarding **claim 5**, the combination Heil-Weber discloses the method of claim 4 wherein said set of performance and availability metrics includes at least one of a number of threads, a security level, and a default volume size and characteristics, default path characteristics (*see Heil; column 2, lines 61-65*).

Regarding **claim 6**, the combination Heil-Weber discloses the method of claim 1 wherein said parameterizing step includes a step of entering a user-defined attribute for inclusion in said set of attributes (see Weber; column 8, lines 26-49; column 5, lines 6-33).

Regarding **claim 7**, the combination Heil-Weber discloses the method of claim 6 wherein said entering step includes entry of said user-defined attribute by use of a graphical user interface coupled to the SAN (*see Heil; fig. 4, item 156*).

Regarding **claim 18**, the combination Heil-Weber the method of claim 1 wherein said constructed data path includes all physical, logical and security component identification and configuration information sufficient to operably link the process to an identified data volume of the SAN (see Heil; column 2, lines 42-67).

Regarding **claim 19**, the combination Heil-Weber discloses a method of configuring a SAN, the SAN providing connectivity between a server and a storage device in the SAN (see Heil; *fig. 3, column 5, lines 49-67*), the method comprising:

discovering, by use of a an external data path engine coupled to the SAN, processes that are operable on a server coupled to the SAN (see Heil; *column 5, lines 49-67; column 6, lines 1-56*);

discovering, by use of said external data path engine coupled to the SAN, storage devices that are included in the SAN (see Heil; *column 5, lines 49-67; column 6, lines 1-56*);

responding, by use of said external data path engine coupled to the SAN, to a data path construction request from a user by providing said user with an interface to accept a set of attributes for a desired data path for one of said discovered processes (see Weber; column 4, lines 44-67; column5, lines 1-33); and

constructing, by use of the external data path engine coupled to the SAN, the data path that provides said set of attributes (see Weber; column 4, lines 44-67; column5, lines 1-33);

Regarding **claim 20**, the combination Heil-Weber discloses an Apparatus for creating a data path for a process executing on a server coupled to a storage area network (SAN), the SAN providing connectivity between the server and a storage device in the SAN (see Heil; *fig. 3, column 5, lines 49-67*), the method comprising:

means for parameterizing a set of attributes for a desired data path between the process and a storage device of the SAN (see Weber; column 8, lines 26-49; column 5, lines 6-33; see Heil; *column 6, lines 4-56*); and

means, coupled to said parameterizing means, for constructing the data path that provides said set of attributes (see Weber; column 8, lines 26-49; column 5, lines 6-33).

Regarding **claim 21**, the combination Heil-Weber discloses the method of claim 1, constructing the data path comprising automatically constructing a datapath having one or more channels or threads (see Heil; column 6, lines 4-67).

Regarding **claim 22**, the combination Heil-Weber discloses the method of claim 2 1, the one or more channels or threads being one or more fibre channel connections (see Heil; column 8, lines 8-67).

Regarding **claim 23**, the combination Heil-Weber discloses the method of claim 19, constructing the data path comprising automatically constructing a datapath having one or more channels or threads (see Heil; column 6, lines 4-67).

Regarding **claim 24**, the combination Heil-Weber discloses the method of claim 23, the one or more channels or threads being one or more fibre channel connections (see Heil; column 8, lines 8-67).

Regarding **claim 25**, the combination Heil-Weber discloses the apparatus of claim 20, the data path being constructed automatically and having one or more channels or threads (see Heil; column 6, lines 4-67).

Regarding **claim 26**, the combination Heil-Weber discloses the apparatus of claim 25, the one or more channels or threads being one or more fibre channel connections (see Heil; column 8, lines 8-67).

Regarding **claim 27**, the combination Heil-Weber discloses the method of claim 1, constructing the data path that provides said set of attributes being performed without user or administrator intervention (see Weber; column 8, lines 26-49; column 5, lines 6-33).

Regarding **claim 28**, the combination Heil-Weber discloses the method of claim 19, constructing the data path that provides said set of attributes being performed without user or administrator intervention (see Weber; column 8, lines 26-49; column 5, lines 6-33).

Regarding **claim 29**, the combination Heil-Weber discloses the apparatus of claim 20, the data path being constructed without user or administrator intervention (see Weber; column 8, lines 26-49; column 5, lines 6-33).

Regarding **claim 30**, the combination Heil-Weber discloses the method of claim 19, discovering storage devices that are included in the SAN being performed automatically (see Heil; column 6, lines 4-67).

Regarding **claim 33**, the combination Heil-Weber discloses the method of claim 19, the external data path engine being operated as part of a general purpose computer (see Heil; column 6, lines 4-67).

Regarding **claim 31**, the combination Heil-Weber discloses the method of claim 1, further comprising:

connecting the SAN to a Wide Area Network (WAN) through a general purpose

computer; and communicating with another processing system through the WAN using the general purpose computer (see Heil; column 5, lines 49-67).

Regarding **claim 32**, the combination Heil-Weber discloses the method of claim 31, communicating with another processing system comprising communicating with a server by using a TCP/IP protocol (see Heil; column 5, lines 49-67; column 5, lines 49-67).

Regarding **claim 34**, the combination Heil-Weber discloses the method of claim 33, the external data path engine being coupled to a switching network of the SAN (see Heil; column 5, lines 49-67).

Regarding **claim 35**, the combination Heil-Weber discloses the method of claim 33,'the general purpose computer being connected to a Wide Area Network (WAN) (see Heil; column 5, lines 49-67).

Regarding **claim 36**, the combination Heil-Weber discloses the method of claim 35, the general purpose computer being connectable to a plurality of other devices, networks or locations through the WAN (see Heil; column 5, lines 49-67).

Regarding **claim 37**, the combination Heil-Weber discloses the method of claim 35, further comprising communicating with another processing system through the WAN using the general purpose computer (see Heil; column 5, lines 49-67).

Regarding **claim 38**, the combination Heil-Weber discloses the method of claim 37, communicating with another processing system comprising communicating with a server using a TCP/IP protocol (see Heil; column 5, lines 49-67; column 5, lines 49-67).

Regarding **claim 39**, the combination Heil-Weber discloses the apparatus of claim 20, further comprising:

a general purpose computer, the means for constructing the data path being operated as part of the general purpose computer; and a Wide Area Network (WAN), the general purpose computer being connected to the WAN, the general purpose computer communicating with another processing system through the WAN(see Heil; column 5, lines 49-67; column 5, lines 49-67).

Regarding **claim 40**, the combination Heil-Weber discloses the apparatus of claim 39, the general purpose computer communicating with a server using a TCP/IP protocol (see Heil; column 5, lines 49-67; column 5, lines 49-67).

Regarding **claim 41**, the combination Heil-Weber discloses the method of claim 1, constructing the data path comprising automatically constructing a data path that provides said set of attributes (see Weber; column 8, lines 26-49; column 5, lines 6-33).

Regarding **claim 42**, the combination Heil-Weber the method of claim 19, constructing the data path comprising automatically constructing a data path that provides said set of attributes (see Weber; column 8, lines 26-49; column 5, lines 6-33].

Regarding **claim 43**, the combination Heil-Weber discloses the apparatus of claim 20, the means for constructing the data path automatically constructing the data path (see Heil; column 6, lines 4-67).

Regarding **claim 44**, the combination Heil-Weber discloses the method of claim 1, constructing the data path comprising constructing a data path across multiple networks (see Heil; column 8, lines 8-67).

Regarding **claim 45**, the combination Heil-Weber discloses the method of claim 19, constructing the data path comprising constructing a data path across multiple networks (see Heil; column 8, lines 8-67).

Regarding **claim 46**, the combination Heil-Weber discloses the apparatus of claim 20, the means for constructing the data path constructing the data path across multiple networks (see Heil; column 8, lines 8-67).

Regarding **claim 47**, the combination Heil-Weber discloses the method of claim 1, constructing the data path comprising constructing a data path across multiple locations (see Heil; column 8, lines 8-67).

Regarding **claim 48**, the combination Heil-Weber discloses the method of claim 19, constructing the data path comprising constructing a data path across multiple locations.

Regarding **claim 49**, the combination Heil-Weber discloses the apparatus of claim 20, the means for constructing the data path constructing the data path across multiple locations(see Heil; column 8, lines 8-67).

7. **Claims 8-17**are rejected under 35 U.S.C. 103(a) as being unpatentable over Heil and Weber, further in view of Stumer (Stumer) U.S. Patent No. 6,195,336 B1.

Regarding **claim 8**, the combination Heil-Weber discloses the method of claim 1, but fails to teach a method wherein said constructing step further comprises:

searching the SAN for a set of candidate storage devices; constructing a candidate data path from the server to each candidate storage device of said set of

candidate storage devices; evaluating each said candidate data path against a selection metric to rank said candidate data paths from a best candidate data path to a least best candidate data path according to said selection metric; and selecting said best candidate data path as the data path to be constructed by said constructing step.

In the same field of endeavor, Weber discloses, Stumer discloses "Meanwhile, cooperating PTN 104 establishes a candidate replacement path 118 based on criteria in the request for path replacement. Processor 114 of the cooperating PTN initializes a second data set containing the same data fields as the first data set. The second data set is transmitted along a candidate path 118. At each gateway PTN 120A-120D, information about candidate path 118 is added to the second data set via respective processors 122A-122D. (The data set also includes time stamps and a terrestrial hop counter.) Information about candidate path 118 can be measured, calculated, encoded on equipment, or looked up. Information looked up can be collected statistics, or can be predictions of circumstances, as for example a prediction of increased usage based on time of day. In such a case, data are forecast and accessed from a data base. Each gateway PTN can add a time stamp, allowing the delay to be determined by taking the difference between later stamps and the initial stamp." [see Stumer, column 4, lines 57-67, column5, lines 1-7]

Accordingly, it would have been obvious to one of ordinary skill in the networking art at the time the invention was made to have incorporated Stumer's teachings of a method and apparatus for searching and constructing a candidate data path with the teachings of Heil and Weber, for the purpose of allowing handling data access requests within the storage system in such a manner that the devices that issue the requests without adversely affecting the ability of the devices that receive the requests

to respond to the request.... as stated by Weber in lines 17-24 of column 1. Stumer also provides motivation to combine claiming the creation of a system for improving call (data) routing through a network....By this rationale **claim 8** is rejected.

Regarding **claim 9**, the combination Heil-Weber-Stumer discloses the method of claim 1 wherein said constructing step further comprises:

searching the SAN for a set of candidate storage devices (*see Stumer; column 4, lines 57-67; column 5, lines 1-67)*;

constructing a candidate data path from the server to each candidate storage device of said set of candidate storage devices ((*fig. 3, column 5, lines 49-67*; *see Stumer; column 4, lines 57-67; column 5, lines 1-67*);

evaluating each said candidate data path against a selection metric to rank said candidate data paths from a best candidate data path to a least best candidate data path according to said selection metric (*see Stumer; column 4, lines 57-67; column 5, lines 1-67);*

presenting said ranked candidate data paths to a user for selection (*see Stumer; column 4, lines 57-67; column 5, lines 1-67*); and

selecting a user-selected candidate data path as the data path to be constructed by said constructing step *(see Stumer; column 4, lines 57-67; column 5, lines 1-67*).

Regarding **claim 10**, the combination Heil-Weber-Stumer discloses the method of claim 9 wherein said presenting step recommends said best candidate data path for selection by said user (*see Stumer; column 4, lines 57-67; column 5, lines 1-67*)

Regarding **claim 11**, the combination Heil-Weber discloses the method of claim 10 wherein said best candidate data path is presented as a default selection at said selecting step (*see Stumer; column 4, lines 57-67; column 5, lines 1-67).*

Regarding **claim 12,** the combination Heil-Weber-Stumer discloses the method of claim 9 wherein said selection metric includes storage device uptime information [see Weber; column 8, lines 26-49; column 5, lines 6-33].

Regarding **claim 13,** the combination Heil-Weber-Stumer discloses the method of claim 9 wherein said selection metric includes performance information[see Weber; column 8, lines 26-49; column 5, lines 6-33].

Regarding **claim 14**, the combination Heil-Weber-Stumer discloses the method of claim 9 wherein said selection metric includes cost calculation [see Weber; column 8, lines 26-49; column 5, lines 6-33].

Regarding **claim 15**, the combination Heil-Weber-Stumer discloses the method of claim 9 wherein said selection metric includes best SAN practices information [see Weber; column 4, lines 44-67].

Regarding **claim 16**, the combination Heil-Weber-Stumer discloses the method of claim 9 wherein said selection metric includes learned state and usage information of the SAN [see Weber; column 4, lines 44-67].

Regarding **claim 17**, the combination Heil-Weber-Stumer discloses the method of claim 9 wherein said searching step prequalifies a subset of candidate data paths by finding those candidates that satisfy a pre-created policy prior to application of said evaluating step (*see Stumer; column 4, lines 57-67; column 5, lines 1-67)*;

Conclusion

8. Any inquiry concerning this communication or earlier communications from examiner should be directed to Jude Jean-Gilles whose telephone number is (571) 272-3914. The examiner can normally be reached on Monday-Thursday and every other Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley, can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3719.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Jude Jean-Gilles

Patent Examiner

Art Unit 2143

JJG

October 21, 2005

DAVID WILEY
SUPERVISORY PATENT EXAMINER
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